DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Siegenthaler, Peter
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-020849
Date Inspected: 16-Feb-2011

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 630
OSM Departure Time: 1500
Location: Job Site

CWI Name:	See Items Observed			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Orthotropic Box Girders

Summary of Items Observed:

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

A). "A" Deck Stiffeners
B). Transverse Stiffener at DAH
C). Deck Access Hole
D). Field Splice E5/E6
E). QC Inspection Request
F). Miscellaneous Task

A). "A" Deck Stiffeners

The QAI observed the welder, Xiao Jian Wan ID-9677, perform the CJP groove welding on the longitudinal stiffener field splice identified as WN: 3W-4W-A-LS5. The welder utilized the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0 and was also utilized by the QC inspector Gary Erhsom as a reference. The amperage was recorded as 123 amps by the QC inspector. The welding was performed by the welder in the vertical (3G) position with the work placed in an approximate vertical plane and the groove approximately vertical. The minimum preheat temperature of 100 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents. The welder utilized a slag hammer and a wire wheel attached to a 4" high cycle grinder to remove slag after deposit of each fill pass. The electrodes were stored in a electrically heated, thermostatically controlled oven after removal from the

sealed containers. The exposure limits of the electrodes identified as E9018-H4R and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents. At the time of the observation no issues were noted by the QAI.

The QAI observed the Complete Joint Penetration (CJP) welding of the longitudinal stiffener field splice identified as WN: 3W-4W-A-LS2. The welding was performed by Hua Qiang Hwang ID-2930 utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0. The WPS was also utilized by the QC inspector Mr. Erhsom as a reference to monitor the welding operation and verify the welding parameters. The amperage was observed by the QAI and recorded by the QC inspector as 123 amps. Later in the shift, after the completion of the CJP welding of LS2, the welder commence the welding of the longitudinal stiffener identified as LS1. The QAI also observed that the field fit-up had been inspected by the QC inspector and appeared to comply with the contract specifications. The welding was performed by the welder in the vertical (3G) position with the work placed in an approximate vertical plane and the groove approximately vertical. The minimum preheat temperature of 100 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents. The welder utilized a slag hammer and a wire wheel attached to a 4" high cycle grinder to remove slag after deposit of each fill pass. The electrodes were stored in a electrically heated, thermostatically controlled oven after removal from the sealed containers. The exposure limits of the electrodes identified as E9018-H4R and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents. At the time of the observation no issues were noted by the QAI.

B).Transverse Stiffener at Deck Access Hole

The QAI observed the repair welding of the Complete Joint Penetration (CJP) groove weld of the transverse stiffener field splice identified as WN: 4W-PP24.5-W5-TS, R1. The excavation and welding was performed by Wen Han Yu ID-6317 utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1001 Repair, Rev.0. The WPS was also utilized by the QC inspector Gary Erhsom as a reference to monitor the welding operation and verify the welding parameters. The QAI observed and verified the amperage which was recorded by the QC inspector as 130 amps. The welding was performed by the welder in the vertical (3G) position with the work placed in an approximate vertical plane and the groove approximately vertical. The minimum preheat temperature of 40 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents. The welder utilized a slag hammer and a wire wheel attached to a 4" high cycle grinder to remove slag after deposit of each fill pass. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from the sealed containers. The exposure limits of the electrodes identified as E7018-H4R and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents. At the time of the observation no issues were noted by the QAI.

The excavation dimensions were verified by the QAI and observed as follows; Y=95 mm, d=12 mm and L=170 mm.

C). Deck Access Hole

The QAI observed the repair welding of the Complete Joint Penetration (CJP) groove weld on the deck access hole

identified as WN: 3W-PP19.5-W2-NW, R1. The welding was performed by Jin Pei Wang ID-7299 utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1001 Repair, Rev.0. The WPS was also utilized by the QC inspector Steve McConnell as a reference to monitor the welding operation and verify the welding parameters. The QAI observed and verified the amperage which was recorded by the QC inspector as 127 amps. The welding was performed by the welder in the overhead (4G) position with the work placed in an approximate horizontal plane and the filler metal deposited from the underneath side. The minimum preheat temperature of 40 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents. The welder utilized a slag hammer and a wire wheel attached to a 4" high cycle grinder to remove slag after deposit of each fill pass. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from the sealed containers. The exposure limits of the electrodes identified as E7018-H4R and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents. At the time of the observation no issues were noted by the QAI.

D). Field Splice E5/E6

The QAI observed the repair welding of the Complete Joint Penetration (CJP) groove weld of the transverse stiffener field splice identified as WN: 5E-6E-D1, R4. The excavation and welding was performed by Wai Kitlai ID-2953 utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1001 Repair, Rev.0. The WPS was also utilized by the QC inspector Jesse Cayabyab as a reference to monitor the welding operation and verify the welding parameters. The QAI observed and verified the amperage which was recorded by the QC inspector as 130 amps. The welding was performed by the welder in the flat (1G) position with the work placed in an approximate horizontal plane and the filler metal deposited from above. The minimum preheat temperature of 40 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents. The welder utilized a slag hammer and a wire wheel attached to a 4" high cycle grinder to remove slag after deposit of each fill pass. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from the sealed containers. The exposure limits of the electrodes identified as E7018-H4R and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents. At the time of the observation no issues were noted by the QAI.

The excavation dimensions were verified by the QAI and observed as follows; Y=530 mm, d=13 mm and L=130 mm.

E). QC Inspection Request

At the request of Quality Control Field Supervisor, Bonifacio Daquinag, the QAI randomly verified the QC visual inspection of the Complete Joint Penetration (CJP) welding of the following; WN: 8E-9E-E1 and E2. The QAI verification was performed to verify that the welding and the visual weld inspection performed by the QC inspector meet the requirements of the contract documents. At the conclusion of the QAI verification it appeared that the welds and the QC inspection complies with the contract documents.

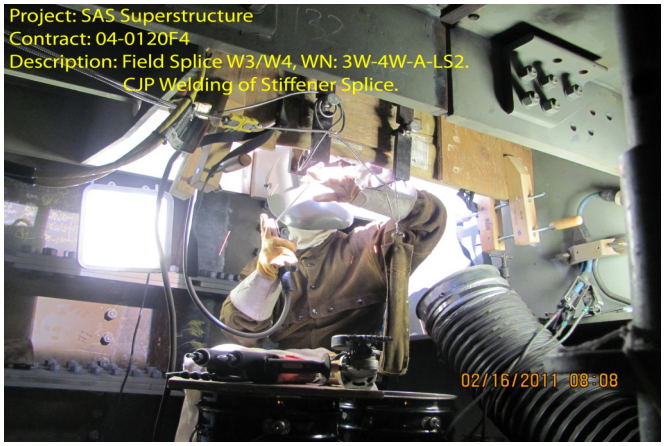
F). Miscellaneous Task

The QAI also performed a review and update of the project progress utilizing QA field reports and NDT reports. The updated project information was documented into the various QA tracking logs.

QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspectors utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The ESAB consumables utilized for the SMAW welding process appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

The digital photographs below illustrate some of the work observed during this scheduled shift.



Summary of Conversations:

There were general conversations with Quality Control Inspector Mike Johnson at the start of the shift regarding the location of American Bridge/Fluor welding, inspection and N.D.E. testing personnel scheduled for this shift.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy (510) 385-5910, who represents the Office of Structural Materials for your project.

WELDING INSPECTION REPORT

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Inspected By:	Reyes,Danny	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer